

MILLER CONSTRUCTION, INC.

P.O. BOX 86 ASCUTNEY BLVD WINDSOR, VERMONT 05089-0086

TELEPHONE (802) 674-5525 / FAX (802) 674-5245

TRANSMITTAL

TO: Kristin M. Higgins, PE Project Manager Vermont Agency of Transportation	DATE	PROJECT NO.
	3/6/2014	Barnard ER BRF 0241 (39)

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WE ENCLOSE THE FOLLOWING:

UNDER SEPARATE COVER WE ARE SENDING THE FOLLOWING

COPIES	NUMBER	DESCRIPTION	CODE
1		Lighting Plan - Rev 0	H

CODE:

A FOR INITIAL APPROVAL

B FOR FINAL APPROVAL

C APPROVED AS NOTED-RESUBMISSION REQUIRED

D APPROVED AS NOTED-RESUBMISSION NOT REQUIRED

E DISAPPROVED-RESUBMIT

F QUOTATION REQUESTED

G APPROVED

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I AS REQUESTED OR REQUIRED

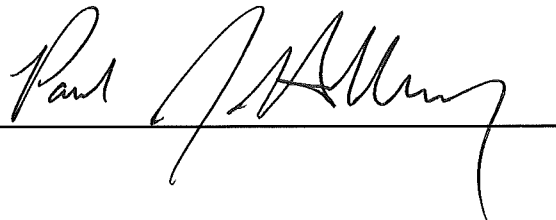
J FOR USE IN ERECTION

K LETTER FOLLOWS

L FOR FIELD CHECK

M FOR YOUR USE

BY:



***Nighttime Work
Lighting System Plan
for
State of Vermont Project: Barnard ER BRF 0241 (39)***

***Town of: Barnard, Vermont
County of: Windsor***

Prepared By:

Miller Construction, Inc.
P.O. Box 86
Windsor, VT 05089
Tel. (802) 674-5525
Fax. (802) 674-5245

March 5, 2014

***Lighting System Plan
FOR
State of Vermont Project: Barnard ER BRF 0241 (39)***

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Lighting System
Barnard ER BRF 0241 (39)

General Project Description and Timetable

The Barnard ER BRF 0241 (39) Project involves the replacement of Bridge 25 which is located in the Town of Barnard on Vermont Route 12 beginning at Mile Post 7.0195 and ending at Mile Post 7.0535. There is currently a Temporary Bridge in place that was installed after Tropical Storm Irene. The new structure will be approximately 88 feet in length with 97 feet of roadway work.

The Project is anticipated to last one construction season.

Nighttime Work Potential:

During the 28 Day allowable Bridge Closure Period (BCP), it may be necessary to perform nighttime work. Any and all project tasks are subject to nighttime work.

The roadway shall be closed and an offsite detour utilized. Therefore, this plan is not subject to MUTCD lighting standards for workzones. No nighttime work shall occur outside of the BCP.

Illumination Levels:

A footcandle is defined as a unit of illumination that is equal to one lumen per square foot, or 10.674 lux.

Per NCHRP 498, the following illumination levels are recommended by task:

All work operation areas – Level I Illumination – 54 lux (5 footcandle)

Areas on or around construction equipment – Level II Illumination – 108 lux (10 footcandle)

The intent of this plan is to illuminate all work areas to a minimum of 5 footcandles with minimum glare and shadowing.

Portable Light Plant Tower:

Magnum Light Tower MLT 3060 with diesel engine.

Light pattern is 4 EA Light Fixtures, 20 degrees from horizontal, 45 degrees apart.

Decibel level of 68 at 23 feet running at prime power.

Layout and Setup Tolerance:

1 EA Portable Light Plant Tower shall be located at the Southeast corner of the bridge and 1 EA Portable Light Plant Tower shall be located at the Northwest (opposite) corner of the bridge. Layout as shown in *Attachment 1* illuminates the entire bridge deck area to

Lighting System
Barnard ER BRF 0241 (39)

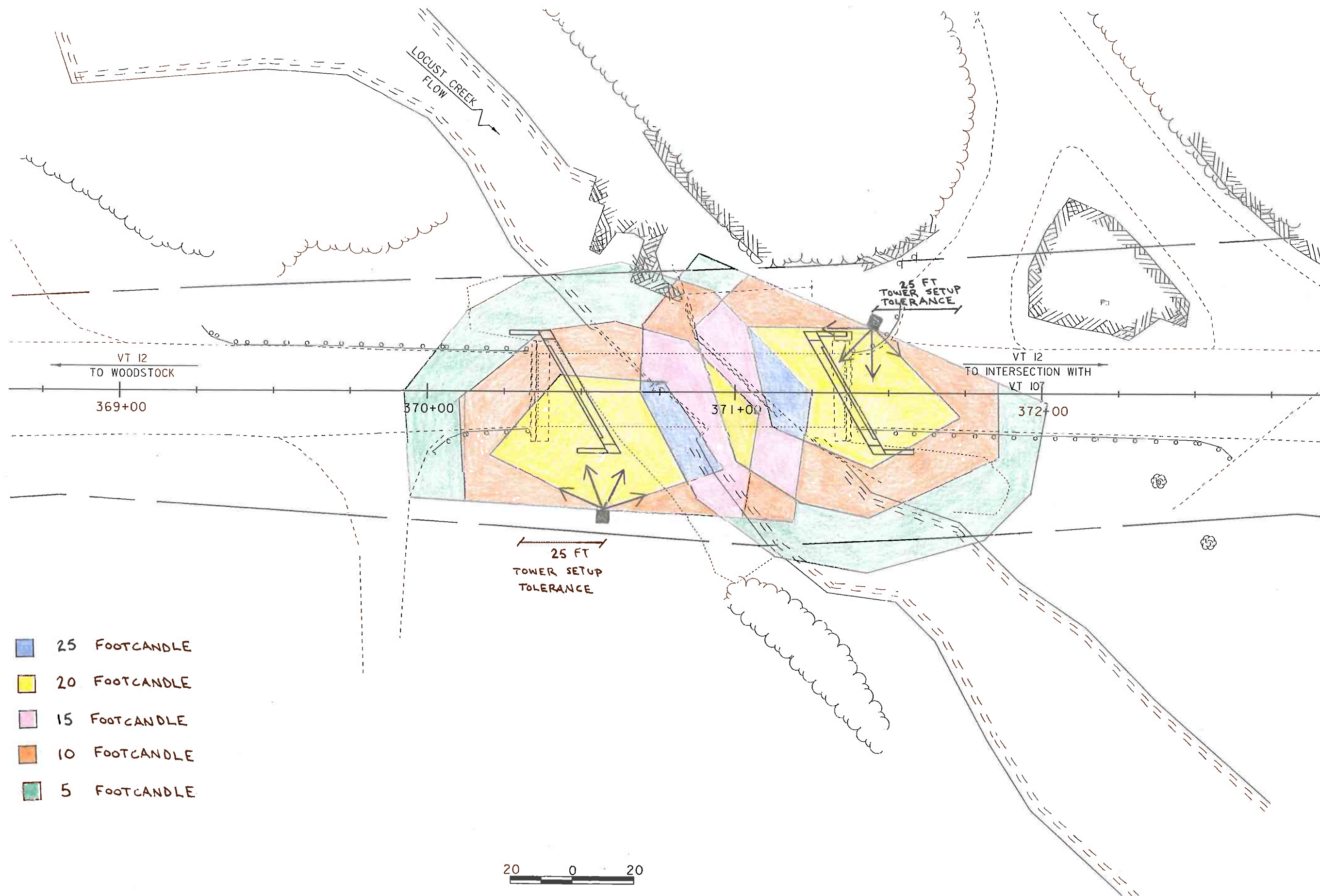
a range of 10 footcandle to 25 footcandle with the surrounding area illuminated to a level of 5 footcandle.

Each Portable Light Plant Tower can be moved further to the North, or to the South respectively, and maintain illumination levels of the entire bridge deck ranging from 10 footcandle to 20 footcandle, with the surrounding area illuminated to a level of 5 footcandle.

Design Check:

Once this plan is installed and activated, field observations shall be performed from the vantage point of the workers to ensure glare is controlled and that the lighting is adequate. Specific task lighting may be required for certain operations and shall be addressed with electric lamps in the field. Should adjustments to the location and/or angling of light fixtures be required, it shall be performed in the field, and this plan amended.

Due to the compact worksite, no photometer monitoring shall be required.



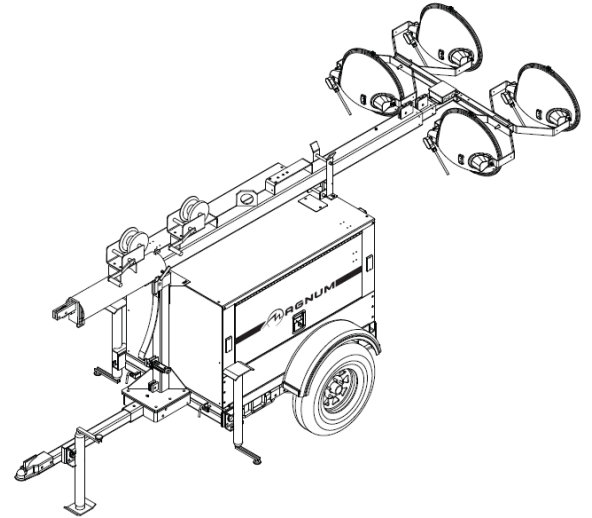
- 25 FOOTCANDLE
- 20 FOOTCANDLE
- 15 FOOTCANDLE
- 10 FOOTCANDLE
- 5 FOOTCANDLE

Magnum Light Tower – MLT3060 Specifications

ENGINE

Mitsubishi® L3E-W461ML - liquid cooled, diesel engine

- Standby - 12.2 hp @ 1800 rpm
- Prime - 10.5 hp @ 1800 rpm
- 3 cylinder
- 0.95 L displacement
- Fuel consumption (prime) – 0.50 gph (1.89 Lph)
- 60 Hz engine/generator
- Industrial engine exhaust system
- Rubber vibration dampers isolate engine/generator from frame
- Cooling system capable of operating at 120°F ambient
- Full flow oil filter, spin on type
- Fuel filter with replaceable element
- Dry type cartridge air filter
- Polyethylene fuel tank with large diameter opening
 - 30 gal. capacity
 - 60 hr. run capacity
 - 3 ½" fill port



ENGINE CONTROLS

- Engraved, aluminum punched and anodized control panel
- Four position keyed switch – glow plugs (preheat, off, run, start)
- Hour meter
- Automatic low oil/high temperature shutdown system

GENERATOR

- Marathon Electric®
 - Brushless
- 6 kW standby output
- 120/240 VAC – 50/25A
- +/-6% capacitor voltage regulation

ELECTRICAL SYSTEM AND CONTROLS

- Individual floodlight circuits with 15A breakers
- Ballast indicator lights
- 30A start limit breaker (assures no load condition exists before starting)
- Standard individually breakered convenience outlets:
 - (1) 120 VAC 20 Amp GFCI duplex outlets (Nema 5-20R type)
 - (1) 240 VAC 30 Amp twistlock outlets (Nema L6-30R type)
- 440 CCA wet cell battery

FLOODLIGHTS

- Four light fixtures – 1000 watts each - metal halide
- Oval aluminum reflector
- Tempered glass lens
- Silicone gaskets for moisture and dust protection
- Individual floodlight On/Off switches

WIRING

- All wiring is sized to the amperage draw required
- AC & DC wiring diagrams are provided

MAST

- 30' maximum extension, 3-section, tubular steel
- Urethane guides on all sides of mast tubes
- Industrial black powder coat finish
- Automatic locking system in horizontal position for travel
- 1500 lb. automatic self-braking winches
- 360° rotation with locking system
- Coiled mast cord
- Dual winch system located at ergonomic height allowing single person operation
- Equipped with single lifting eye and fork pockets

ENCLOSURE

- Steel enclosure – 14-gauge
 - UV& fade resistant, high temperature cured, white polyester powder paint
 - 68 dB(A) at 23 feet – prime power
- Stainless steel hinges on doors
- Multi-lingual operating/safety decals
- License plate holder with light
- Manual holder with operating manual

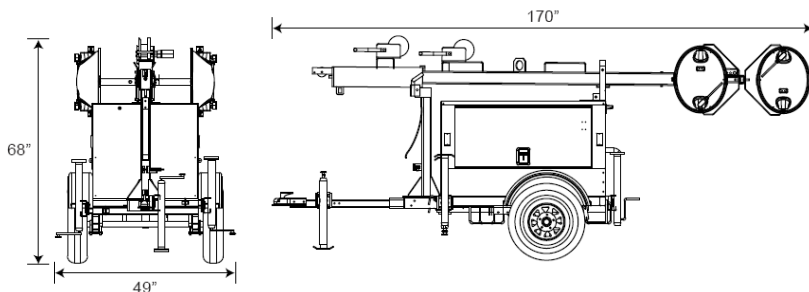
TRAILER

- Mast support - 3" square tube, 1/4" wall
- Removable tongue - 48" long
- Tubular steel frame - 3/16" wall
- Four, 2000 lb. adjustable leveling jacks – 4 point stance
- All jacks transport and lock in horizontal position for storage
- Side outriggers - 8' 1/4" span
- Safety chains with spring loaded safety hooks
- 2" ball hitch
- Single wall polyethylene fenders
- DOT approved tail, side, brake, and directional lights
 - Recessed rear lights
- 2200 lb. leaf spring axle
- ST175/80D13 – 6 ply
- 40.75 in. axle span



WEIGHTS & DIMENSIONS

- Dry weight: 1657 lbs (752 kg)
- Operating weight: 1870 lbs (848 kg)
- Mast stowed: 170 x 49 x 68 in (4.32 x 1.25 x 1.73 m)



WARRANTY

- Engine and generator covered under OEM warranty – consult factory for details.

CERTIFICATIONS

- CSA certified

MLT3060 Options

COOLANT OPTIONS

- ◆ 60/40 Coolant, 60% Ethylene glycol

ENGINE OPTIONS

- ◆ Heated fuel filter
- ◆ Oil drain valve kit
- ◆ Lower radiator hose – engine heater

ELECTRICAL CONTROLS OPTIONS

- ◆ 720 CCA wet cell battery
- ◆ 720 CCA AGM sealed battery (Optima)
- ◆ 775 AGM sealed battery
- ◆ Battery disconnect
- ◆ Battery charger – 2A trickle
- ◆ Autolight controller

CABINET OPTIONS

- ◆ Interior cabinet light
- ◆ Level indicator

HITCH OPTIONS

- ◆ 2.5" lunette ring
- ◆ 3" lunette ring
- ◆ 3" HD lunette ring
- ◆ 2 5/16" ball
- ◆ Combination hitch – 2.5" lunette ring / 2" ball



TRAILER OPTIONS

- ◆ Tube and sleeve jack
- ◆ 6 pin or 7 spade connectors
- ◆ Spare tire and carrier

LIGHT OPTIONS

- ◆ Tubelight™ Diffused Light accessory
- ◆ High pressure sodium, quick disconnect lights

MAST CORD OPTIONS

- ◆ Drape cord

MAST, WINCH, & FINISH OPTIONS

- ◆ Galvanized, manual, dual winch
- ◆ Galvanized, electric, dual winch
- ◆ Galvanized, electric, dual winch, quick disconnect
- ◆ Black, electric, dual winch
- ◆ Black, electric, dual winch, quick disconnect



